REMARKS

Claims 1-10 stand rejected under 35 USC 102 over Chen et al. Applicant respectfully traverses.

The present invention is concerned with a method of bandwidth optimization for a constant bit rate packetized transport stream having N program streams, each program stream being broken into groups of pictures. In the preferred implementation of the invention, the constant bit rate stream is delivered to a user location over a pipe of limited bandwidth, such as a twisted pair telephone cable. Each group of pictures is inserted into the constant bit rate packetized transport stream, either unchanged or transrated in the event that the number of bits in the group of pictures is greater than the number of bits available for that group of pictures. It will thus be seen that the constant bit rate packetized transport stream is an output stream of the method.

It is well known that the operation of transrating a group of pictures reduces the number of bits in the group of pictures. Accordingly, the present invention is concerned with optimizing the utilization of the constant bit rate packetized transport stream by reducing, if necessary, the number of bits in a group of pictures of one or more program streams.

Chen et al is concerned with a multichannel MPEG video transcoder using multiple programmable processors. At column 4, lines 56-62, Chen et al refers to a transcoder 100 including a bit stream scheduler or splitter 110 that receives multiple input bit streams, and multiple single channel transcoders for transcoding the bit streams respectively. Chen et al is concerned with scheduling the processing units that are supplied to the stat mux 130 for combining to form the transport stream, i.e. determining the optimum sequence in which processing units of different incoming program streams should be supplied to multiple transcoders.

Chen et al does not disclose that a program stream is transrated on a GOP basis depending on the number of bits in the GOP.

Claim 1 recites the step of determining a number of available bits for each group of pictures from each program stream, i.e. assigning a target for the maximum number of bits for each group of pictures. The examiner relies on the passage at column 5, lines 53-65, as showing this feature. The passage in question shows only that the MTS bitstream is partitioned into processing units and does not disclose or suggest the relevant feature of claim 1.

Claim 1 recites the step of inserting each group of pictures into the constant bit rate packetized transport stream when the number of bits for the group of pictures is less than or equal to the number of available bits for that group of pictures. The examiner relies on the passage at column 1, lines 20-25, as showing the feature of a constant bit rate packetized stream but this passage refers only to the source video sequences that might be received by a transcoder, not the packetized transport stream that is output by the method of Chen et al.

The examiner relies on the passages at column 7, lines 15-20, and column 9, lines 55-63 as showing the feature of inserting each group of pictures into a packetized transport stream when the number of bits for the group of pictures is less than or equal to the number of available bits for that group of pictures, but these passages do not disclose this feature. Column 7, lines 15-20, is concerned with delay time in a queue and column 9, lines 55-63, is concerned with different approaches to processing of pictures depending on whether they are in the same or different groupings.

Claim 1 recites the step of transrating each group of pictures when the number of bits in the group of pictures is greater than the number of available bits for that group of pictures so that the total number of bits in the groups of pictures is less than or equal to the total number of available bits. The examiner relies on the passage at column 5, lines 48-53, as showing this feature but this passage is concerned with scheduling a queue of bitstream units in order that a transcoding process will be efficient.

Finally, claim 1 recites the step of inserting each transrated group of pictures into the constant bit rate packetized transport

stream. The examiner relies on the passage at column 6, lines 19-23, as showing this feature. This passage refers to the data output from the processors being provided to the stat mux 130 to form an output bit stream, but does not disclose that this output bit stream is a constant bit rate bit stream.

In view of the foregoing, applicant submits that claim 1 is not anticipated by Chen et al. It follows that the dependent claims 2-10 also are not anticipated.

Claim 11 is similar in scope to claim 1 with respect to the manner in which it is determined whether to insert a group of pictures into the constant bit rate packetized transport stream unchanged or after transrating. Therefore, claim 11 is not anticipated by Chen et al and it follows that the dependent claims 12-20 are not anticipated.

Respectfully submitted,

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